

1NS
2AG

WHAT IS CLAIMED IS:

1. A composition comprising a peptide consisting of 2 D-amino acids and 11 L-amino acids, said peptide having the formula $R_1-R_2-R_3-R_4-R_5$, proceeding from the amino-terminus to the carboxy-terminus, wherein:

R_1 is a D-amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of cyclohexylalanine, tyrosine, and phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is

independently selected from the group consisting of alanine, isoleucine, serine and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, and tryptophan-threonine-leucine-lysine; and

R_5 consists of 2 or 4 amino acids followed by a D-amino acid, wherein each of the 2 or 4 amino acids is independently selected from the group consisting of alanine, serine and valine.

2. The composition of claim 1 wherein:

R_1 is D-alanine followed by alanine or lysine;

R_2 is cyclohexylalanine or phenylalanine;

R_3 is 3 or 4 amino acid, wherein each of the 3 or 4 amino acids is selected from the group comprising alanine, isoleucine, and valine; and

R_5 is 2 or 4 alanines followed by D-alanine.

3. The composition of claim 2 wherein the peptide is selected from the group consisting of aAXAAAKTAAAAa, aAXAAAATLKAAAa, aAXVAAATLKAAAa, aAXIAAATLKAAAa, aKXVAAATLKAAAa, and aKFVAAATLKAAAa wherein a is D-alanine, A is alanine, X is cyclohexylalanine, K is lysine, T is threonine, L is leucine, V is valine, I is isoleucine, W is tryptophan, and F is phenylalanine.

4. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and the peptide of claim 1.

5. A composition comprising a CTL inducing peptide and a T helper peptide, wherein the T helper peptide is a peptide of claim 1.

5 6. The composition of claim 5, wherein the CTL inducing peptide is acetylated, palmitylated, or acylated with a fatty acid.

10 7. The composition of claim 5, wherein the CTL inducing peptide is linked to the T helper peptide to form a CTL/T helper peptide conjugate.

15 8. The composition of claim 7, wherein the CTL/T helper peptide conjugate is linked to a carrier.

20 9. The composition of claim 6, wherein the CTL inducing peptide is linked to the T helper peptide by a spacer molecule.

25 10. The composition of claim 9, wherein the spacer is Ala-Ala-Ala.

30 11. A method of inhibiting activation of T cells in a patient, the method comprising administering to the patient a therapeutically effective dose of a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a peptide of between about 4 and about 20 residues, the peptide being capable of binding antigen binding sites on MHC molecules encoded by substantially all alleles of a DR locus.

35 12. The method of claim 11 wherein the peptide is the peptide of claim 1.

13. The method of claim 11 wherein the peptide is the peptide of claim 3.

14. A method of inducing activation of T cell clones in a patient, the method comprising administering to the patient

a therapeutically effective dose of a pharmaceutical composition comprising a pharmaceutically acceptable carrier and a peptide of between about 4 and about 20 residues, the peptide being capable of binding antigen binding sites on MHC molecules encoded by substantially all alleles of a DR locus.

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15. The method of claim 14 wherein the peptide is conjugated to a CTL inducing peptide.

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16. The method of claim 14 wherein the peptide is the peptide of claim 1.

17. The method of claim 14 wherein the peptide is is the peptide of claim 3.

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